

AMENDMENTS TO THE DRAWINGS

Applicant submits herewith Replacement Sheets for Figures 1 and 2. The reference characters not mentioned in the description have been removed in order to comply with the Examiner's request.

Attachment: Replacement sheets (2)

REMARKS

Claims 1-10 were pending in the present application. By virtue of this response, no claims have been cancelled or amended, and no new claims have been added. Accordingly, claims 1-10 are currently under consideration. No new matter has been added.

Concerning the drawings

Figure 1 and Figure 2 have been corrected to remove reference characters not mentioned in the description.

Concerning the specification**Abstract**

The abstract of the disclosure has been revised to less than 150 words in length.

Disclosure

The sentence on page 29, lines 14-16 has been revised to clarify the use of the reference character “12”.

Rejections under 35 U.S.C. §102(e)

The Office has rejected claims 1-3, 6, and 9-10 as allegedly being anticipated by Kasai et al. (U.S. Patent No. 6,229,731, hereinafter the Kasai reference). Applicant respectfully traverses this rejection as it applies to the original claims.

Applicant submits that the Kasai reference fails to disclose each and every element recited in the independent claim 1. In particular, the Kasai reference fails to disclose at least the following elements: 1) the security release key, 2) the security registration lock, and 3) the determination circuit for generating a security release signal using the security release key and the security registration lock. The Kasai reference teaches a method that stores protect-information

and/or security-information in a flash memory. The protection-information is used to prohibit rewrite of data in a flash memory main body and the security-information is used to prohibit reading of data in the flash memory main body. The protection/security information associated with a corresponding block of memory is one bit of information that is used to turn on/off the rewrite or readout protection, respectively, of the corresponding block of memory (see Kasai, Figures 1, 2, and 5; col. 2 lines 57-67 and col. 3 lines 1-13). However, the flash memory for storing the protection/security information is subject to be tampered by an unauthorized user, because there is an external access path to the protection/security information through the command interface and the write/erase circuit (see Kasai, Figure 5). Once the protection/security information is tampered, the security of the data in the flash memory main body is compromised. The following paragraph will explain the reasons that the present invention provides better data protection with the claimed elements indicated above.

The security function of the present invention is implemented with at least the security release key (the key), the security registration lock (the lock), and the determination circuit. The key is stored in a region of a non-volatile memory cell array block along with the data to be protected. Meanwhile, the lock is stored in a separate non-volatile memory. In order to access the protected data, the key and the lock have to “match”, where the “match” is determined by the determination circuit. The determination circuit may be implemented by subjecting the key and the lock to a predetermined mathematical operation, such as a unidirectional hash conversion (see page 22, lines 20-25). Therefore, even if either the key or the lock is illegally obtained or tampered by an unauthorized user, the data is still protected as both the key and the lock are required to access the data. In addition, since mathematical operations are used to “match” the key and the lock in the determination circuit, it is very hard to reverse-engineer the mathematical operations. On the contrary, it is quite simple to reverse-engineer the AND gate used by the Kasai reference to generate the rewrite or readout signal from the protection or security information respectively (see Kasai, Figure 1 and Figure 2). Thus, the Kasai reference does not disclose each and every element of claim 1. It is respectfully submitted that the independent claim 1 and its dependent claims 2-10 are allowable over the Kasai reference.

Rejections under 35 U.S.C. §103(a)

The Office has rejected claim 4 under 35 U.S.C. §103(a) as allegedly being unpatentable over Kasai et al. (6,229,731) as applied to claim 2 above, and further in view of Matsuo et al. (5,974,513). For the reasons presented above, since the Kasai reference does not anticipate each and every elements of the base claim 1, which claims 2 and 4 depend from, claim 4 can not be found obvious over Kasai in view of Matsuo.

The Office has rejected claim 5 under 35 U.S.C. §103(a) as allegedly being unpatentable over Kasai et al. (6,229,731) as applied to claim 1 above, and further in view of Arai (6,543,017). For the reasons presented above, since the Kasai reference does not anticipate each and every elements of the base claim 1, which claim 5 depends from, claim 5 can not be found obvious over Kasai in view of Arai.

Claims 7 and 8 are rejected under 35 U.S.C. §103(a) as applied to claim 1 above, and further in view of Araki et al. (5,374,847). For the reasons presented above, since the Kasai reference does not anticipate each and every elements of the base claim 1, which claims 7 and 8 depend from, claims 7 and 8 can not be found obvious over Kasai in view of Araki.

CONCLUSION

In view of the above, each of the presently pending claims in this application is believed to be in immediate condition for allowance. Accordingly, the Examiner is respectfully requested to withdraw the outstanding rejection of the claims and to pass this application to issue. If it is determined that a telephone conference would expedite the prosecution of this application, the Examiner is invited to telephone the undersigned at the number given below.

In the event the U.S. Patent and Trademark office determines that an extension and/or other relief is required, applicant petitions for any required relief including extensions of time and authorizes the Commissioner to charge the cost of such petitions and/or other fees due in connection with the filing of this document to Deposit Account No. 03-1952 referencing docket no. 299002053200. However, the Commissioner is not authorized to charge the cost of the issue fee to the Deposit Account.

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Respectfully submitted,

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Attachments